

① Calculate distance apart for each gene pair using recombination frequency calculation:

Parent Cross	Offspring Phenotype 1	Offspring Phenotype 2	Offspring Phenotype 3	Offspring Phenotype 4
Parents' Gene Pairs				
Wild Type (+ +) X Purple/Black (pb) (Eye color + body color)	wild/wild 280 ++ Parental	purple/black 284 pb Parental	purple/wild 16 p+ Recombinant	wild/black 20 +b Recombinant
Wild Type (+ +) X Purple/Dumpy (pd) (Eye color + wing curve)	wild/wild 176 ++ Parental	purple/dumpy 175 pd Parental	purple/wild 126 p+ Recomb.	wild/dumpy 123 +d Recomb.
Wild Type (+ +) X Purple/Vest (pv) (eye color + wing size)	wild/wild 262 ++ Parental	purple/vest. 263 pv Parental	purple/wild 36 p+ Recomb.	wild/vestigial 39 +v Recomb.
Wild Type (+ +) X Black/Vest (bv) (Body color + wing size)	wild/wild 240 ++ Parental	Black/vest. 249 bv Parental	black/wild 52 b+ Recomb.	wild/vestigial 59 +v Recomb.
Wild Type (+ +) X Black/Dumpy (bd) (Body color + wing curve)	wild/wild 193 ++ Parental	Black/dumpy 194 bd Parental	black/wild 107 b+ Recomb.	wild/dumpy 106 +d Recomb.

Recombinants

Total offspring

$$\frac{36}{600} = .06$$

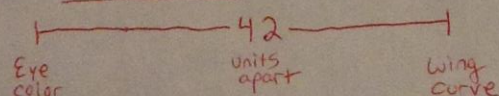
$$\frac{249}{600} = .42$$

$$\frac{75}{600} = .13$$

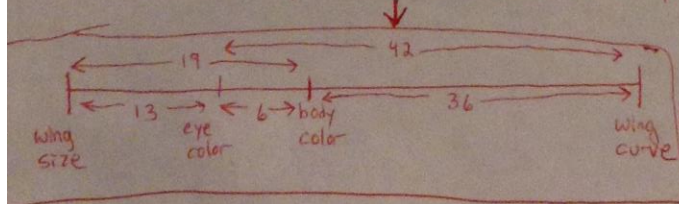
$$\frac{111}{600} = .19$$

$$\frac{213}{600} = .36$$

② Plot 2 FURTHEST on a line



⑤ wing size = 19 from body color + 13 from eye color, fits best to the left of eye color on current map. Make final map + check all data for consistency.



③ Compare next furthest apart pair + another pair with common trait.

